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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/657,025

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Mark P. Goldenfield

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EXAMINER

PALABRICA, RICARDO J

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 01/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/657,025	Applicant(s) GOLDENFIELD ET AL.	
	Examiner Rick Palabrica	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005 and 05 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 9-12, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9, 10, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/5/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's 9/19/05 and 12/05/05 Responses, which directly amended claims 1 and 15, and traversed the rejection of claims in the 7/19/05 Office action, is acknowledged.
2. As to the matter regarding the objection to the drawings in section 1 of said Office action, regarding the relative size of the contact areas of the dimples/springs of the auxiliary grid, the current Examiner notes that the proposed amendment to the specification in Applicant's 9/24/04 Response was neither entered nor carried forward in any of the subsequent amendments to the specification. This proposed amendment included a correction that discloses the contact lengths for the vertical springs and dimples of the auxiliary grid being longer than the corresponding contact length for the main support grid.

Following resubmission of the amendment, the amended Fig. 6 will be entered. The current Examiner, however, notes that there is an issue with regard to Fig. 5 that needs correction (see section 4 below).

3. As to the traverse of applied prior art, Applicant's arguments have been fully considered but they are not persuasive as demonstrated in sections 8-11 below.

Drawings

4. The drawings are objected to because Figure 5 should be designated by a legend such as --Prior Art, since only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-5, 7, 9, 10, 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new matter pertains

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to the limitation of the dimples/springs in the auxiliary grid and main support grid that "continuously contact" a fuel element (e.g., see claims 1 and 15). The original specification discloses ONLY that dimples/springs "contact" a fuel element (see page 11, lines 7+ of the specification). There could be at least be two possible species of so-called "contact", e.g., continuous contact and non-continuous contact. The specific species of "continuous contact" between said elements has neither been referred to, taught, nor disclosed in the original specification.

6. Claims 1-5, 7, 9,10,14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims recite the limitation, of the dimples/springs of the main support grid and auxiliary grid that "continuously contact" the fuel elements. There is neither an adequate description nor enabling disclosure as to what is all encompassed by the term, "continuously contact". See also section 5 above.

7. Claims 1-5, 7, 9,10, 14 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete, and its metes and bounds cannot be determined, particularly in regard to the term “continuously contact.” It is not known what all is meant by or encompassed by this term.

Note that the term “continuously contact” can be interpreted in different ways, e.g., a) area-wise continuous contact, wherein the entire surface area of a dimple/spring contacts a fuel element without any gaps between the two surfaces, such total area contact occurring either at all times or at certain times, e.g., during plant operation; b) time-wise continuous contact, wherein there is periodic contact/non-contact between a portion of a dimple/spring with a fuel element, i.e. there is intermittent but still continuous contact, e.g., during plant operation; c) time-wise continuous contact, wherein a portion of the area of a dimple/spring is in contact with a fuel element at all times, e.g., during plant operation

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Thomazet et al. (U.S. 4,804,516).

Applicant's claim language reads on Thomazet et al. as follows: a) “plurality of main support grids” reads on grids 6-9 and 16; b) “at least one auxiliary grid” reads on

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any one of grids 10, 11 and 12. Note that grid 11, for example, is "sandwiched" (i.e., enclosed) between grid 9 and grid 16, and it is at an elevation in the mid third region of the fuel element. Note that a plurality of the main support grids (e.g., grids 6-9) are evenly spaced and in tandem. Note also from Fig. 2 that grid 16 is different from any one of the auxiliary grids 10-15.

As to the elevation of grid 11 being in said third mid region, note that while patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of the claims.

See *In re Mraz*, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

As to the claim limitation regarding the dimples/springs of the auxiliary grid having a larger contact area than those of the main support grid, note that Thomazet et al.'s auxiliary grids 10, 11 or 12, as shown in Figs. 5 and 6, have double bosses compared to the single boss of the main support grid, e.g., grid 9, as shown in Figs. 7, 8 and 9.

9. Claims 1-5, 7, 9, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Canat et al. (U.S. 5,183,629).

Applicant's claim language reads on Canat et al. as follows: a) "plurality of main support grids" reads on grids 24; b) "at least one auxiliary grid" reads on any one of grids 26.

Absent Applicant's definition of the term, "continuously contact" and based on Examiner's interpretation of this term as in b) and c) of section 7 above, Canat et al.'s

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auxiliary grid 26 has greater total area of contact between springs/dimples and the fuel than main support grid 24. See Fig. 2 and col. 4, lines 50+, for the auxiliary grid, vs. Fig. 8 and col. 5, lines 21+, for the main support grid.

As to claim 7, note from Fig. 1 that auxiliary grid 26 has a shorter height than main grid 24.

As to claim 14, Applicant's claim language, "outer strap" reads on the outermost band of crossed plates 28 and 30 that enclose a fuel assembly (see Fig. 2).

10. Claims 1-5, 7, 9, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Anthony (U.S. 4,058,436). The reasons are the same as those given in section 10 of the 7/19/05 Office action, as further clarified below.

Applicant alleges in the 9/19/05 Amendment that the amendment to claims 1 and 15 to add the limitation, "each support cell supporting a single fuel element" defines over Anthony. Applicant asserts that "Anthony includes four fuel rod in each support cell of center grid 18", which does not meet said added limitation. The Examiner disagrees. The amended claim language still does not restrict each support cell to only a single fuel rod, as stated in said 7/19/05 Office action.

Note that that the claim language, "supporting a single fuel element" does not preclude "supporting more than one fuel element". The article "a" is an indefinite article, which the dictionary defines as "used as a function word before singular nouns when the referent is unspecified" (see Reference U). Thus, any one of the four fuel rods in a

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support cell of Anthony reads on claim language "a single fuel element." Underlining provided.

Applicant further alleges that Anthony does not meet the limitation of claim 4 because he teaches "employing only a single grid 18." The Examiner disagrees. See, for example col. 4, lines 48+, which states:

"It may, in some circumstances, be desirable to employ a pair of additional seismic grid 18s 18 positioned equidistant between the seismic grid of Fig. 1 and the opposite ends of the fuel assembly."

Applicant also alleges that Anthony does not meet the limitation of claims 7 and 9. The Examiner disagrees.

As to claim 7, as stated in the 7/19/05 Office action, the auxiliary grid 18 (Figs. 1 and 6) has a lesser height than that of grid 16 (see Fig. 6 vs. Fig. 3).

As to claim 9, note from Fig. 6 that the top dimples 54 of the auxiliary grid 18 lie on the same horizontal plane. Likewise, the lower dimples lie on the same horizontal plane. Alternatively, both top and bottom dimples lie on the same vertical plane of the wall to which they are attached.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anthony (U.S. 4,058,436) in view of Leclerq (U.S. 4,844,861).

The reasons are the same as those given in section 11 of the 7/19/05 Office action, as further clarified below.

Applicant traverse the use of Leclerq to modify Anthony on the ground that Leclerq teaches employing fins on the median grids, which “teaches away from applicant’s invention, which does not employ mixing vanes on the auxiliary grids in the mid-third region of the core.” The Examiner disagrees. The teaching in Leclerq to modify Anthony is on providing support grids (e.g., grid 20) with mixing vanes to increase turbulence of the coolant and improve heat transfer from the fuel to the cooling fluid, and not on the alleged use of mixing vanes for a grid at a specific location on the fuel element.

Conclusion

12. Applicant’s amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
January 20, 2006

A handwritten signature in black ink, appearing to read "R. Palabrica". The signature is written in a cursive, flowing style with a large initial "R" and a long, sweeping underline.